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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,011	03/14/2002	William John Macklin	MACKLIN-03211	4530

7590 12/09/2005

Law Offices of William H. Holt  
12311 Harbor Drive  
Woodbridge, VA 22192

EXAMINER
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MERCADO, JULIAN A

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/069,011	<b>Applicant(s)</b> MACKLIN ET AL.	
	<b>Examiner</b> Julian Mercado	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 31, 2005 has been entered.

Claims 1-10 are pending, of which claims 7-10 are newly submitted.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The rejection of claims 1-6 under 35 U.S.C. 103(a) based on Miyabashi et al. (U.S. Pat. 4,945,014) and Ikeda et al. (U.S. Pat. 5,879,836) has been withdrawn.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyabashi et al. in view of Zhou et al. (U.S. Pat. 6,280,697 B1).

Art Unit: 1745

As discussed in a prior Office action, Miyabashi et al. teaches a lithium cell in which the carbonaceous material contains a metal such as aluminum, tin or silicon, which is capable of forming an alloy with the lithium active material. See col. 4 line 48 et seq. and col. 2 line 66 et seq.

While Miyabashi et al. teaches that the carbonaceous material is desirably a fiber or rod, the patentees do not explicitly teach carbon nanotubes for the material. However, Zhou et al. teaches carbon nanotubes as an electrode material for a lithium battery. See col. 2 line 1 et seq. . The skilled artisan would find obvious to modify Miyabashi et al.'s invention by employing carbon nanotubes for reasons such as increasing the capacity of the formed battery. See col. 2 line 42-46, see also col. 1 line 63-67.

As to the nanotubes having the metal contained within them so as to be inside the nanotubes, Zhou et al. further teaches that during preparation of the nanotubes, the application of ultrasonic energy has the latent benefit of "serving to increase the ability to accommodate intercalated materials." As a result, "[c]onsiderable amounts of  $\text{Li}^+$  ions can readily diffuse into these structurally damaged SWNTs through the opened ends, and perhaps through other defect sites, to give an enhanced capacity." See col. 4 line 24-29 and col. 6 line 52-59. (note: SWNTs is an abbreviation for single-walled nanotubes) Thus, at least to the skilled artisan, the metals of the lithium active material would resultantly diffuse into the nanotubes so as to be contained inside the nanotubes.

Art Unit: 1745

***Conclusion***

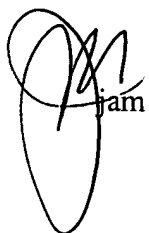
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. 6,709,471 B2, while not qualifying as prior art, is cited of cumulative relevance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



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PATRICK JOSEPH RYAN  
SUPERVISORY PATENT EXAMINER